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ABSTRACT

Cooperative learning has received a substantial amount of empirical support to indicate it is a viable classroom reward structure. It has been recommended that school psychologists might add this strategy to their repertoire of interventions to be used in consulting with teachers, particularly integrating handicapped students. A structured cooperative learning strategy for reading, Cooperative Integrated Reading and Composition (CIRC) was implemented in nine 3rd grade classes in rural Ohio with 198 students. The control group consisted of nine 3rd grade classes with 194 students. Reading subtests of the California Achievement Test were utilized in order to compare results with previous evaluations of CIRC. A Multivariate Analysis of Covariance with univariate follow-up analyses revealed the CIRC group significantly outgained the control group on Reading Comprehension. In addition, when the groups were divided into three reading levels (low, middle, high) differences were found in the lower level favoring CIRC. Teacher acceptability ratings were obtained indicating positive experiences with CIRC. Overall it appears that CIRC may be a promising strategy for school psychologists to utilize with adequate support from administration in consultation with teachers and schools, particularly in efforts to assist lower achieving students and to integrate more handicapped children into the regular classroom. (Author/ABL)

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Cooperative Learning: A Field Study with Implications for School Psychologists

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Abstract

A structured cooperative learning strategy for reading, Cooperative Integrated Reading and Composition (CIRC) was implemented in nine, third-grade classes in rural Ohio (n = 198) and compared to a control group of nine classes (n = 194). Reading subtests of a standardized reading test (California Achievement Test) were utilized in order to compare results with previous evaluations of CIRC. A Multivariate Analysis of Covariance (MANCOVA) with univariate follow-up analyses revealed the CIRC group significantly outgained the control group on Reading Comprehension. In addition, when the groups were divided into three reading levels (low, middle, and high), differences were found in the lower level favoring CIRC. Teacher acceptability ratings were obtained indicating positive experiences with CIRC. Issues and implications for school psychologists are discussed.

Cooperative Learning: A Field Study with Implications for School Psychologists

Cooperative learning has received a substantial amount of empirical support to indicate it is a viable classroom reward structure (Johnson & Johnson, 1975; Slavin, 1991). Following a comprehensive review of cooperative learning, Nastasi and Clements (1991) recommended that school psychologists might add this strategy to their repertoire of interventions to be used in consulting with teachers, particularly in integrating handicapped students (e.g., Graden, Zins, & Curtis, 1988).

Several cooperative learning strategies have been developed including Student Teams Achievement Divisions (STAD), Teams-Games-Tournaments (TGT), Team Accelerated Instruction (TAI) for math (Slavin, 1991) and JIGSAW (Aronson, 1978). More recently, a cooperative learning approach that includes a structured reading program, Cooperative Integrated Reading and Composition (CIRC), has been developed (Stevens, Madden, Slavin, & Farnish, 1987).

In the development of CIRC, an attempt was made to use cooperative learning "as a vehicle for introducing state-of-the-art curricular practices derived primarily from basic research into the practical teaching of

reading and writing" (Stevens et al. 1987, p. 435). Thus, a sequence of instructional activities and curricular materials for reading and writing is utilized along with cooperative learning.

In two brief evaluations, 12 and 24 weeks, of CIRC, significant increases on standardized reading and writing measures were shown above control classes in an urban setting (Madden, Stevens, & Slavin, 1986; Stevens et al. 1987). In a one-year follow-up study, Stevens, Slavin, and Farnish (1989), found significant increases in reading and language achievement in students in second through sixth grade.

In this current study, an attempt was made to partially replicate the research of Stevens et al. (1987) using the reading components of CIRC in a rural setting. In addition, this analysis was intended to provide information related to teachers' perceptions or acceptability ratings of CIRC (Shapiro, 1987) and issues for school psychologists who might serve as consultants in similar efforts.

Methods

Subjects and Setting

The subjects were 392 third-grade students in 18 classes. Teachers volunteered to participate in this study and represented eight school districts in rural

Southern Ohio. The teachers' experience ranged from 4 to 21 years (mean = 14.8 years). The CIRC group included 9 classes (n = 198) and the control group had 9 classes (n = 194). The investigators were blind to the skill level or competence of the teachers.

Procedures

Description of Cooperative Integrated Reading and Composition (CIRC). The experimental group received a one-day (6 hours) training in CIRC by a certified trainer from The Johns Hopkins University in the Fall, 1990. Teachers in the control group were promised training and materials upon completion of the first year of the project.

This study followed the general guidelines established by Stevens et al. (1987). These general guidelines follow a cycle of instruction and include several components which will be listed below.

Reading instruction took place in the reading groups to which students were assigned according to reading ability. However, they were divided into heterogeneous learning teams (4-5 members) for the cooperative learning activities. Students were assigned a partner from the same reading level, although it was recommended that one partner be slightly more advanced, to assist each other through

the story related activities. The cycle of instruction began with the teacher instructing students in their respective reading groups according to reading ability and then placing them in their teams for the basal related activities. The components of CIRC included: (1) basal related activities, (2) partner reading, (3) story structure and story related writing, (4) words out loud, (5) word meaning, (6) story retelling, (7) spelling and, (8) direct instruction in reading comprehension. A more detailed description of CIRC is provided by Madden, Stevens, Slavin, and Farnish, 1988.

To ensure the integrity of CIRC, observations were conducted bi-weekly and lasted approximately one hour depending on the allotted time for reading by a certified school psychologist with training in cooperative learning and CIRC. Observation and consultation forms were utilized by the psychologist which included each component of CIRC and the degree to which the teacher was utilizing the component during the observation.

Results

Data Analysis

Achievement. The SYSTAT statistical package was used in order to conduct a nested Multivariate Analysis of Covariance (MANCOVA) (teachers nested within group)

with follow-up univariate tests to compare the CIRC and Control groups on the reading subtests. Pretest Total Reading scores were used as the covariate and adjusted posttest scores were compared. No significant differences were found between the groups on the dependent variables when considered as a whole. However, univariate tests showed the adjusted posttest means of the CIRC group was signficantly different from the Control group on Comprehension ($p = .045$) and approached significance on Total Reading ($p = .073$) and Word Analysis (.065). In Table 1, the adjusted posttest means for each group are presented.

Table 1

about here

Next, the two groups were divided into three levels based on percentile rankings of pre-test Total Reading scores (e.g., bottom 33%, middle 33%, and upper 34%). The rationale for this was that the reading levels might be differentially affected by reading instructional method (Stevens et al. 1987).

Again, a MANCOVA (teachers nested within group)

was conducted with pre-test Total Reading as the covariate. The results showed the adjusted posttest means in the lower percentile level of the CIRC group were significantly different from those of the lower percentile level in the Control group as a whole ($p = <.01$) and on each of the reading subtests ($p = <.03$). Significant differences were not found in the middle or the upper percentile levels.

Teacher Ratings. All teachers in the CIRC group completed an exit survey rating each component of CIRC on a five-point Likert scale with 1 = very negative to 5 = very positive. All components of CIRC were rated above four indicating positive feelings. Their mean ratings are reported in Table 2.

Table 2

About here

Conclusions

Based on these current findings, the overall reading achievement increases were not as substantial as those in previous studies (Stevens et al. 1987; Stevens et al. 1989). However, the CIRC group outgained the Control group on Reading Comprehenion which is consistent with the Stevens study. When

considering different reading levels (low, middle, and high), the lower reading level of the CIRC group significantly outgained the control group in all of the reading subtests of the California Achievement Test. Again, this is consistent with previous evaluations of cooperative learning showing greater improvements for lower achieving students (Slavin et al. 1989). Interestingly, no differences were found in the middle and upper percentile levels. Yet, an inspection of the adjusted post-tests scores indicated these levels generally show a trend favoring the CIRC group.

Because cooperative learning has been recommended as a strategy for integrating lower achieving, at-risk, and handicapped students (Nastasi & Clements, 1991), perhaps, the findings of this study may contribute positively to this endeavor. Future studies might look at the effects of CIRC on the very lowest achieving students (e.g., those already identified as learning handicapped). Also, it might be advisable to utilize dependent variables to compare future results such as curriculum-based or other criterion related measures. Perhaps, these would be more sensitive to the effects of the intervention.

A notable result of this study was the teacher ratings of CIRC. The teachers who used CIRC rated it

highly and stated they would continue to use it in the future. As Shapiro (1987) has suggested, highly effective interventions may not succeed if the consumers do not judge the intervention as acceptable. Teachers in this study clearly "liked" using CIRC indicating a high degree of acceptability. This was thought to be a very positive sign given the broad experience of these teachers.

Overall, it appears that CIRC may be a promising strategy for school psychologists to utilize with adequate support from administration in consultation with teachers and schools, particularly in efforts to assist lower achieving students and to integrate more handicapped children into the regular classroom. The cooperative learning aspects along with the structured reading curriculum make CIRC an appealing strategy.

Finally, school psychologists who already possess the requisite skills in consultation, intervention design, and a good knowledge base in peer mediated interventions including cooperative learning will be well suited to provide the type of follow-up suggested in this study. However, broad training in cooperative learning and specific training in CIRC are recommended to provide necessary follow-up assistance to teachers.

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Table 1

Adjusted posttest standard score means for CIRC and Control groups and grade equivalent gain scores (not adjusted)

Measure	CIRC (n = 198) Scores	Control (n = 194) Scores	p
Pretest			
Total Reading	635	637	
Posttest			
Vocabulary	685	682	n.s.
Comprehension	688	681	.045
Total Reading	687	682	.065
Word Analysis	669	663	.073
Multivariate			.145

Table 2

Teacher Ratings of each Component of CIRC

Component	Rating
Introducing Story	4.55
Partner Reading	4.67
Treasure Hunt	4.78
Words Out Loud	4.67
Story Retell	4.78
Spelling	4.33
Story Related Writing	4.11
Partner Checking	4.00
Tests	4.33
Reading Comprehension	4.11
Independent Reading	4.00

Note: The components were rated on a 5-point Likert scale (1 = very negative to 5 = very positive).